Ornamental Plant Germplasm Center

OPGC Quarterly Newsletter
January 2007

In This Issue:

VISION: Furnishing genetic raw materials and associated information to enhance American floricultural productivity to ensure a high-quality supply of herbaceous ornamentals.

Director's Message

This is the time of the year that we tend to sit back and reflect. The year 2006 was an important year in determining the Ohio Plant Germplasm Center's future direction and development. We went through a joint external USDA-Floriculture Industry review in March 2006. Since then we have been working hard to implement the recommendations.

A major recommendation of the Review Team was elimination of clonal crop curation at this stage in the development of the OPGC, allowing us to focus on seed maintained crops. A difficult decision was made to eliminate the Clonal Crop Curator position as of November 30, 2006. We have been able to recognize the additional responsibilities of some other staff by promoting Eric Renze and Art Wells to Research Assistant 2 and Russell Eckley to Research Assistant 1.

One comment of Review Team members was our inability to use the USDA Germplasm Resources Information Network (GRIN) database, which was becoming a bottleneck in our operations. At the moment I am pleased to report that we have removed this constraint, are comfortable in using GRIN, and have entered most OPGC-acquired accession information into the GRIN database.

The number of priority genera focused on by the OPGC was reduced from 25 to six by the USDA Herbaceous Ornamental Crop Germplasm Committee, as recommended by the Review Team. The six priority genera are now *Begonia, Coreopsis, Lilium, Phlox, Rudbeckia*, and *Viola* (Asian taxa). If you have suggestions or ideas on how we can collaborate in these priority genera, please write to me at tay.9@osu.edu.

I wish you a successful 2007. Thank you again.

David Tay, Ph.D.

Director

Donation Aids OPGC Library

By Eric Renze

We would like to thank Dr. Charles C. Powell for his generous donation to the OPGC library. Dr. Powell donated more than 100 books on subjects ranging from insects and diseases to botany and general gardening. He and D'mitri Pinkston, a Columbus Alternative High School (CAHS) intern, have been cataloging the books and adding them to our library shelves.

Dr. Powell, a retired Ohio State University professor and a greenhouse consultant, has been volunteering since November. He is a valuable resource because of his wealth of knowledge which he so readily shares.

Thank you, Dr. Powell!

Donated volumes from Dr. Powell expand the OPGC Library.

How to Submit a Germplasm Request

By Art Wells, Research Assistant

Recently, we have had several inquiries about how to request germplasm, so here is a brief introduction to the proper procedure.

Please note that our germplasm distributions are intended for research use only. Some recent distributions include the following uses — an international seed company's breeding program, a university's plant collection for anthropological study, a government institute's examination of DNA sequences, and a foreign national quarantine services' reference collection. These are just some examples of legitimate research requests.

To request germplasm, begin by visiting USDA's Germplasm Resources Information Network (GRIN) web site. The address for searching for plant germplasm is: **http://www.ars-grin.gov/npgs/acc/acc_queries.html.**

At this web page, researchers can search for accessions (genetically distinct plant groups) based on a variety of criteria. One method is searching for accessions of a certain desired genus. By searching the genus *Rudbeckia* in the Taxon field (shown below) and selecting "Submit Request," one can view all of the available *Rudbeckia* accessions in the GRIN database.

Taxonomy

To limit your search, enter information into one of the fields below:

Taxon: Rudbeckia (e.g., *Zea* or *Zea mays*)

Family: (e.g., *Poaceae*)

Common name: (e.g., Peanut)

or choose other criteria.

Submit Request

Click on any of the accession identifiers in the resulting list to be taken to a new page to view a description of the plant and its availability status. Many will have descriptions of plant size, form, and collection information. Some will display commercial varietal information.

For all accessions that are currently available, a "Request This Germplasm" link will appear in the Availability section. To request an accession, simply click on the link. This will result in a page displaying the Shopping Cart, as shown here.

Current NPGS Germplasm Request List

You now have 1 accession(s) selected.

ID	Plant Name	Taxon
OPGC 1009	LK40	*Rudbeckia mollis*

Complete the germplasm request. Clear the request list.

At this point there are three options:

1. Go back in the browser and continue to search, adding more accessions to the request list using the shopping cart feature.
2. Clear the request list of unwanted accessions.
3. Complete the germplasm request.

To complete the germplasm request, contact and shipping information must be provided. There is also a field for special instructions.

The OPGC requests that the "Intended Use of Material" field of the request form be completed. This field is for researchers to describe their purposes for requesting the germplasm. This enables the OPGC to track the use of our germplasm and better understand the value of our service to industry, government agencies, universities, and other institutions.

Thank you for your interest in our germplasm. I look forward to filling your research requests.

6 Scientists, Scholars Visit OPGC in 2006

By David Tay, Director

In 2006 OPGC hosted three visiting scientists and three scholars.

Visiting Scientists

Leping He, Professor, College of Agriculture and Biotechnology, Yunnan Agricultural University, Kunming, China

Ms. He arrived in January 2006 and will depart in January 2007. She is working in the Department of Horticulture and Crop Science and the Ornamental Plant Germplasm Center conducting seed dormancy and priming research on flower seeds with Professor M. B. McDonald and Dr. D. Tay. She presented a poster entitled *Dormancy-Breaking and Germination Requirements of Evening Primrose Seeds of Oenothera Species* at the Joint Meeting of SCST, AOSA, and AOSCA, Indianapolis, Indiana, June 2-8, 2006.

Dr. Haim Nerson, Professor, Vegetable Crops Department, Volcani Institute, Israel

Dr. Nerson is working in the seed research laboratories of Drs. Miller McDonald and David Tay at the Ornamental Plant Germplasm Center from November 6, 2006, to April 7, 2007. His main interests are seed biology and physiology, and he will conduct research on environmental effects on dormancy imposition in muskmelon seeds.

Dr. Nerson pollinating his melon plants.

(L-R standing) Ana Paula Santin Brancalion (Visiting Scholar, Brazil), Chris Fominyam Njoh (Norman Borlaug Scholar, Cameroon), David Tay (Director), Eric Renze (Research Assistant 2), Russell Eckley (Research Assistant 1), Ricardo Marques Da Silva (Visiting Scholar, Brazil) and Susan Stieve (Curator).

(L-R kneeling) Brian Shininger (Student Worker), Tim Fleischer (Student Worker), and Art Wells (Research Assistant 2).

Chris Fominyam Njoh, Curator, Limbe Botanic Garden, Limbe, Cameroon

Fominyam is the first Norman Borlaug Scholar of Ohio State University's College of Food, Agricultural, and Environmental Sciences. Chris stayed with us from July 8, 2006, to September 28, 2006. He received practical training in greenhouse management, plant propagation, and tissue culture.

Included in the training were field trips to visit Ball Horticulture in Chicago, the Beautiful Gardens program of the Virginia Nursery and Landscape Association, the USDA National Plant Exchange Office and the USDA Animal and Plant Health Inspection Service in Beltsville, the Brooklyn Botanic Garden, the New York Botanical Garden, Longwood Gardens, Mt. Cuba Center, and the Atlanta Botanical Garden.

Chris is presently implementing a USDA/FAS project at Limbe Botanical Garden to conserve local ornamental plant germplasm and use it for commercialization, applying the concept of "conservation through use."

Chris prepared a poster entitled *Native Begonias and Impatiens, Great Horticultural Potentials of S. W. Cameroon,* presented at the 27th International Horticultural Congress, August 13-19, in Seoul, Korea.

Visiting Scholars

The Ohio State University and the University of Sao Paulo-ESALQ, Piracicaba, Brazil (USP-ESALQ), have an agreement for the exchange of students. In the last two years, the Ornamental Plant Germplasm Center has hosted two senior undergraduate students. In 2005, Pedro Henrique Santin Brancalion completed a four-month stay from August to December 2005 which resulted in these three posters:

- Brancalion, P. H., D. Tay, R. R. Rodrigues, and A. D. Novembre. (2006). *Priming of Guava Seed (Psidium guajava L.).* 27th International Horticultural Congress, August 13-19, Seoul, Korea. P. 407.
- Brancalion, P. H., D. Tay, R. R. Rodrigues, and A. D. Novembre. (2006). *Seed Imbibition of Five Brazilian Native Tree Seeds.* 27th International Horticultural Congress, August 13-19, Seoul, Korea. P. 415.
- Brancalion, P. H., D. Tay, A. D. Novembre, and R. R. Rodrigues. (2006). *Priming of Mimosa bimucronata Seeds — A Tropical Tree Species from Brazil.* Fourth International and 8th National Symposium on Seed Transplant and Stand Establishment of Horticultural Crops, San Antonio, Texas.

Ricardo Marques da Silva, Undergraduate Student (Senior), University of Sao Paulo-ESALQ, Piracicaba, Brazil.

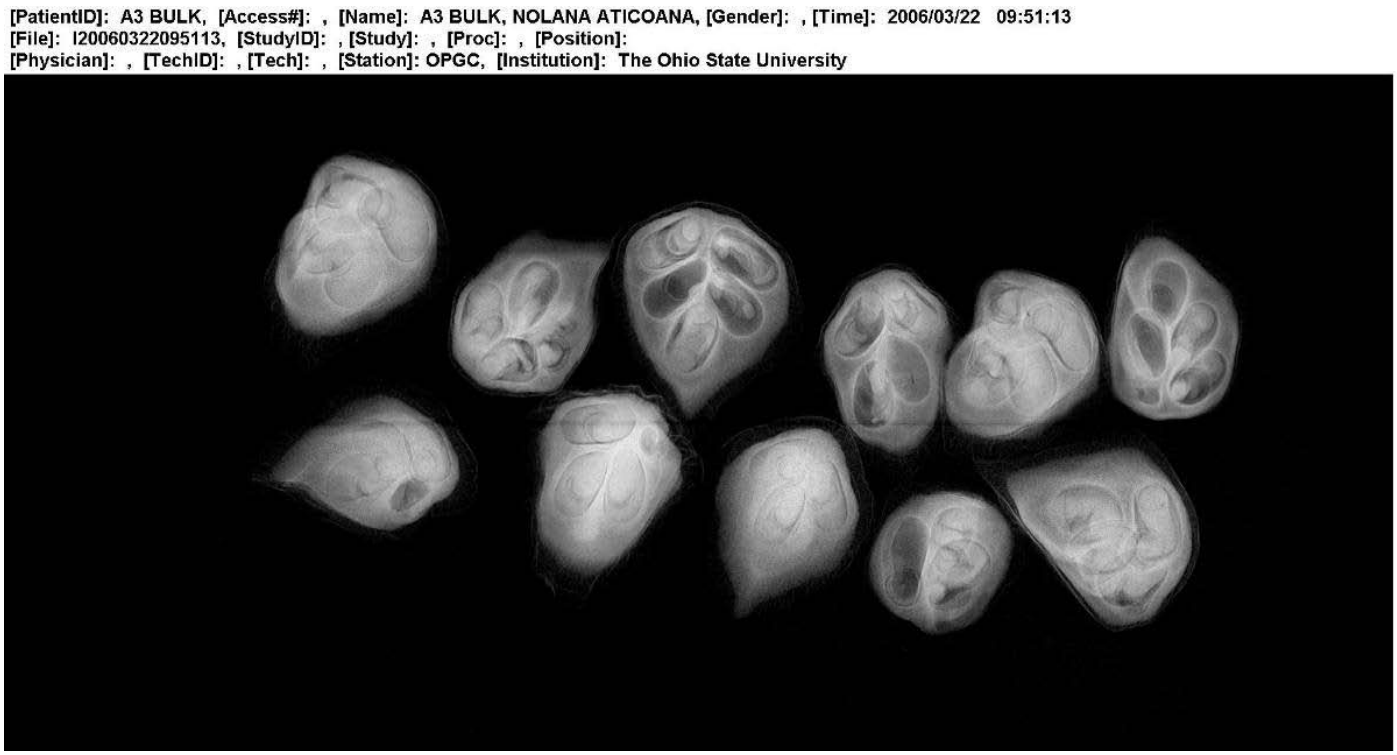
In 2006 Ricardo Marques da Silva spent four months at the Center from July to November 2006, under the OSU/USP-ESALQ agreement. He studied the operation of a genebank and prepared a proposal for the establishment of an ornamental plant genebank in Brazil. The proposal included details on the design, the materials, and the methods used in the conservation of seeds.

Ana Paula Santin Brancalion, Undergraduate Student (Senior), Sao Paulo State University, Araraquara, Sao Paulo, Brazil.

Through the recommendation of Pedro Brancalion, Ana (Pedro's sister), a student in pharmacy, worked on an OPGC collaborative project with Ohio State University's College of Pharmacy in evaluating plant properties for the control of tropical parasites. Ana spent four and a half months in Dr. Karl Werbovetz's laboratory.

Amy C. Douglas, Ph.D. candidate, Department of Plant Biology, University of New Hampshire.

Ms. Douglas spent a week, March 17-24, 2006, with us, using our X-ray equipment to look at *Nolana* seed in her Ph.D. research.



X-ray image of *Nolana* fruits showing the seed chambers and seeds.

GRIN Site Meeting, Tour of New York Genebank

By Susan Stieve, Curator

I attended the Germplasm Resources Information Network (GRIN) Site Meeting in Geneva, New York, on September 13 and 14, 2006. Experts and GRIN users from all genebanks in the USDA National Plant Germplasm System (NPGS) were invited to attend this biennial meeting, where current issues regarding the GRIN database were presented and discussed, and changes to the system were voted on.

It was also a great opportunity to visit a large genebank and see how things were done there (more on this later).

GRIN is a fairly complex database which NPGS genebanks use to store all the information known about an accession, including taxonomy, who collected it, when and where it was collected, and the original habitat where the plant was found growing. GRIN is also used to store inventory, maintenance and observational data, and to manage germplasm distributions.

Since GRIN is such an integral part of our work at the OPGC, it is important that everyone here understand the various facets of the database.

For the first time, an extra day was added before the GRIN meeting for an Introduction to GRIN training day on September 12, which I also attended. Some 35 GRIN users, ranging from beginners to experts, were given hands-on training in GRIN. This was a good opportunity to see how GRIN users at other sites enter data, since there is some flexibility in the system, and there were many opportunities to ask questions. I returned to the OPGC confident that we have many talented GRIN users at our site.

The GRIN meetings were held at the Plant Genetic Resources Unit (PGRU) located on the Geneva campus of Cornell University. Currently PGRU maintains about 20,000 accessions; major collections include apple, grape, onion, tomato, and vegetables. Research activities at PGRU include application of whole plant, cellular, and molecular markers to assess diversity of germplasm collections; in vitro and cryopreservation of clonal and seed propagules; and virus detection and eradication. PGRU staff provided informative tours of their site, as well as homemade goodies to nibble on, including grape pie.

2006 GRIN Site Meeting at the Plant Genetic Resources Unit, Geneva, New York

Lisa Burke, seed storage specialist from Ames, Iowa, sampling the grape collection.

Phil Forsline of the Plant Genetic Resources Unit (PGRU) discussing the NPGS apple collection, many of which were wild-collected in Kazakstan.

OPGC
January 2007

Ornamental Plant Germplasm Center Endowment

The first specialized flower genebank in the world.

We invite you to be a part of the global effort to save our heirloom flowers by contributing to the OPGC Endowment. Please help ensure that our children and grandchildren will be able to enjoy the beauty of the flowers that our forebears left us.

- Our Vision: Furnishing genetic raw materials and associated information to enhance American floricultural productivity to ensure a high-quality supply of herbaceous ornamentals.
- OPGC Goals: The OPGC will acquire, document, maintain, characterize, and distribute herbaceous ornamental genetic resources and associated information for conservation, enhancing scientific research, and floriculture.

The OPGC benefits include:

- Preservation of unique genetic materials for present and future crops that are resistant to pests and diseases.
- Plants requiring fewer economic inputs, such as water, fertilizers, and pesticides.
- Promotion of consumer product appeal through expansion of crop diversity in form, color, and fragrance.
- Biological activity for pharmaceutical, nutriceutical, agrochemical, and functional food uses.

All levels of contribution are welcome.

To contribute:

Please make check payable to:

The Ohio State University, Account # 645512

Please send your contribution to:

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Telephone: 614-292-3708
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If you need additional information from any of our staff please feel free to call or email anytime.

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